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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/11/2000

Peter James Hughes

36-1359

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09/29/2006

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EXAMINER

ESCALANTE, OVIDIO

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,977

Applicant(s)

HUGHES, PETER JAMES

Examiner

Ovidio Escalante

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 3,12,18,19,27,28,31 and 32 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11,13-17,20,29,30,33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's response filed on July 19, 2006. **Claims 1-21,27-34** are now pending in the present application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,4-7,10,13,16,17,20,21,33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Horn et al. US Patent 5,953,049.

Regarding claims 1 and 10, Horn teaches a teleconferencing system comprising a conference bridge (180-fig. 1) having a multi-channel audio connection (col. 4, lines 38-67) to each of a plurality of terminal equipments (101-106), each multi-channel audio connection comprising a plurality of individual audio channels, (fig. 2B), and each of the plurality of terminal equipments receiving the individual audio channels through a respective one of the multi-channel audio connections, (col. 4, lines 38-67), each of the terminal equipments having means to separately process each received audio channel to provide a plurality of outputs, (col. 2, lines 4-8; col. 5, lines 46-55; col. 10, lines 12-29), each output representing one of the other terminal equipments, (col. 3, lines 1-12).

Regarding claims 4 and 13, Horn, as applied to claims 1 and 10, teaches wherein the audio channel representing a given terminal equipment is excluded from the output provided in that terminal, (col. 5, lines 46-55).

Regarding claim 5, Horn, as applied to claim 4, teaches means in at least one of the terminal equipments for excluding the audio channel from the processing, (col. 2, lines 4-8).

Regarding claim 6, Horn, as applied to claim 4, teaches means for excluding the audio channel from the multi-channel transmission from the bridge to the respective terminal equipment, (col. 2, lines 4-8).

Regarding claim 7, Horn, as applied to claim 1, teaches with selection means whereby the user of an individual terminal can select which audio channel, or audio channels, of the plurality of audio channels are to be output by the user terminal, (col. 5, line 66-col. 6, line 11).

Regarding claims 20 and 21, Horn, as applied to claims 1 and 10, teaches wherein each of the terminal equipments includes a de-multiplexer (255) for separating the individual audio channels received through a respective one of the multi-channel audio connections, (col. 4, lines 15-29).

Regarding claims 3 and 12, Horn teaches a teleconferencing system comprising a conference bridge (180-fig. 1) having a multi-channel audio connection (col. 4, lines 38-67) to each of a plurality of terminal equipments (101-106), each multi-channel audio connection comprising a plurality of individual audio channels, (fig. 2B), and each of the terminal equipments receiving the individual audio channels through a respective one of the multi-channel audio connections, (col. 4, lines 38-67), each of the terminal equipments having means to separately process each received audio channel to provide a plurality of outputs, (col. 2, lines 4-

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8; col. 5, lines 46-55; col. 10, lines 12-29), each output representing one of the other terminal equipments, (col. 3, lines 1-12);

wherein the conference bridge comprises a concentrator, having means to identify the currently active input channels, and to transmit only those active channels over the multi-channel audio connections as the plurality of individual audio channels, together with control information identifying the transmitted channels, (col. 10, lines 12-29).

Regarding claims 16 and 17, Horn teaches a teleconferencing system comprising a conference bridge (180-fig. 1) having a multi-channel audio connection (col. 4, lines 38-67) to each of a plurality of terminal equipments (101-106), each multi-channel audio connection comprising a plurality of individual independent monaural channels, (fig. 2B; col. 4, lines 38-67), and each of the terminal equipments receiving the individual independent monaural channels through a respective one of the multi-channel connections, (col. 4, lines 38-67), each of the terminal equipments having means to separately process each received individual independent monaural channel to provide a plurality of outputs, (col. 2, lines 4-8; col. 5, lines 46-55; col. 10, lines 12-29), each output representing one of the other terminal equipments, (col. 3, lines 1-12).

Regarding claim 33-34, Horn teaches wherein each of the terminal equipments includes a demultiplexer (255) for separating the individual audio channels received through a receptive one of the multi-channel audio connections, (col. 4, lines 15-29; col. 5, lines 26-34).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 2,11 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horn in view of Curry et al. US Patent 7,012,630.

Regarding claims 2,11 and 29-30, Horn as applied to claims 1,10,16 and 17, does not specifically teach wherein at least one of the terminal equipments has spatialisation means to combine the outputs representing each terminal equipment to provide a spatialisation output in which each terminal equipment is represented by a virtual sound source.

In the same field of endeavor, Curry teaches of a teleconferencing system wherein at least one terminal equipments has spatialisation means to combine outputs representing each terminal equipment to provide a spatialisation output in which each terminal equipment is represented by a virtual sound source, (abstract; col. 2, line 60 - col. 3, line 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Horn by including spatialization means as taught by Curry so that the user will know from which terminal the sound came from and thus can use a virtual system to indicate to the user the location of the sound source.

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7. Claims 8,9,14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horn in view of Ludwig US Patent 5,617,539.

Regarding claim 8, Horn, as applied to claims 1 and 10, does not specifically teach including echo cancellation means.

In the same field of endeavor, Ludwig teaches at least one of the terminal equipments having echo cancellation means comprising means for detecting correlations between the output signal from the at least one terminal equipment and input signals carried on individual input channels to the at least one terminal equipment, the input signals being representative of other terminal equipments, such correlations being indicative of acoustic feedback at the at least one terminal equipment, and means for canceling such feedback signals in the output signal, (col. 15, lines 46-55; echo cancellation requires correlating signals between the output and input order to reduce echo and feedback signal components that are output and then fed back or reflected (echoed) back into the input).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Horn to include echo cancellation means as taught by Ludwig so that echo feedback can be attenuated.

Regarding claims 9 and 15, Horn in view of Ludwig, as applied to claims 8 and 14, does not specifically teach a plurality of adaptive filters. However, although Ludwig discloses an adaptive echo canceller producing an echo cancellation signal as discussed above, Ludwig fails to disclose using adaptive filters on each channel and feeding the output into a combiner in order to produce the echo cancellation signal.

However, "Official Notice" is taken that both the concept and advantages of using adaptive filters on each of a plurality of channels and feeding the output into a combiner would have been well-known and expected in the art of multi-channel, signal processing systems such as echo cancellers used in a conferencing environment.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add adaptive filtering on each channel with output fed into a combiner to the adaptive echo canceller disclosed by Ludwig to increase the accuracy and flexibility of adaptive filtering used in an echo canceller by individually adapting each channel because each channel is independent.

Since applicant did not traverse the examiner's assertion of official notice, the well known in the art statement is taken to be admitted prior art because applicant failed to traverse the examiner's assertion of official notice.

Allowable Subject Matter

8. Claims 3,12,18,19,27,28,31-32 are allowed.
9. The following is a statement of reasons for the indication of allowable subject matter:

Applicant contends that Horn does not disclose "wherein the conference bridge comprises a concentrator, having means to identify the currently active input channels, and to transmit only those active channels over the multichannel audio connections as the plurality of individual audio channels, together with control information identifying the transmitted channels.

While the Examiner notes that Horn clearly teaches of identifying a currently active input channel and transmitting the active channels, Horn teaches that each individual terminal makes a determination on their own as to which channels are active and thus there is no need to send

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control information identifying the transmitted channels to the terminals. In an alternative embodiment, Horn teaches that a conference bridge makes the determination and only sends the audio information that is active to the terminal. Horn, does not appear to teach or suggest of sending control information from a concentrator in a conference bride that identifies the transmitted channels that are active over the mulitchannel audio connection.

Response to Arguments

10. Applicant's arguments filed July 19, 2006 have been fully considered but they are not persuasive.

Applicant contends that Horn fails to disclose “each of the terminal equipments having means to separately process each received audio channel to provide a plurality of outputs” since while Horn discloses multiple channels the audio mixer 296 cannot “unmix” the received signal to separately process each received audio channel to provide a plurality of outputs. The Examiner respectfully disagrees.

In fig. 2a,2b and in col. 5, lines 26-34, Horn teaches the audio channel can be monitored to determine the pattern of voice activity. An audio channel monitor can monitor a single channel or multiple audio channels, and it can reside on the user terminal (as exemplified by audio monitor/controllers 250, 250' of FIG. 2A). Therefore, based on fig. 2a, the output out of the demultiplexer in the terminal results in audio channel 257. Based on the description in at least col. 5, audio channel 257 is a plurality of audio channels. Therefore, since the terminal receives a mixed audio from the audio mixer into the demultiplexor, and since the output of the demultiplexor shows multiple audio channels, then the demultiplexor separates the audio channels that it receives and therefore, Horn meets the claimed limitation “each of the terminal

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equipments having means to separately process each received audio channel to provide a plurality of outputs”.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or faxed to:

(571) 273-8300, (for formal communications intended for entry)

Or:

(571) 273-7537, (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to:

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Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ovidio Escalante whose telephone number is 571-272-7537. The examiner can normally be reached on M-Th from 6:30AM to 4:00PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan S Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OVIDIO ESCALANTE
PATENT EXAMINER

Ovidio Escalante

Ovidio Escalante
Primary Patent Examiner
Group 2614
September 22, 2006

O.E./oe